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ABSTRACT

This research paper is an evaluation of the Dallas County Child Care Council's program and materials for training day care staff. Thirty-five white, middle-class 3-year-old children and their teachers participated in the study. The children were enrolled in two separate day care centers which served as control and experimental environments. The value of the staff training is described in terms of its effect on the children's levels of intellectual and visual perceptual functioning as measured in pre- and posttests by the Slossen Intelligence Test and Frostig Developmental Test of Visual Perception. Prior to the initiation of the educational program in the experimental center, the staff was trained through workshop sessions on child development theory. All parents were contacted in regard to the research; letters addressed to the parents of children in the experimental group also requested that they initiate activities related to those introduced in school. Results revealed that the children in the experimental group made (1) a measurable, but not significant, increase in intellectual functioning; and (2) a significant increase in perceptual functioning. Directions for further research are indicated and there is a brief review of day care literature and programs. (SDH)

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A STUDY OF EFFECTS ON INTELLECTUAL AND PERCEPTUAL DEVELOPMENT OF CHILDREN IN ALL-DAY CARE

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF SCIENCE IN CHILD DEVELOPMENT
IN THE GRADUATE SCHOOL OF
THE TEXAS WOMAN'S UNIVERSITY

COLLEGE OF
NUTRITION, TEXTILES, AND HUMAN DEVELOPMENT

BY
DOROTHY RAYMOND COYLE

DENTON, TEXAS
MAY, 1974

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You may give them your love but not your thoughts,
For they have their own thoughts.
You may house their bodies but not their souls,
For their souls dwell in the house of tomorrow,
which you cannot visit, not even in your dreams.
You may strive to be like them, but seek not to
make them like you.
For life goes not backward nor tarries with yesterday.
You are the bows from which your children as living
arrows are sent forth.

Kahlil Gibran

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CHAPTER I

INTRODUCTION

Since 1960, the number of licensed day care facilities in the United States has tripled, and the number of children in other preschool programs has doubled. Enrollment in kindergarten and nursery school programs, which now exceeds four million, will reach 6.3 million by 1980 (Klein, 1973). This increasing demand for preschool, nursery, and day care programs adds significance to the question raised by Dr. Edward Zigler in the Fall of 1971, when he headed the Office of Child Development: "Are we going to provide the children of this nation with developmental child care or are we merely going to provide them with babysitting?" Today, two years later, 10% of the population of preschool children of working mothers are in licensed day care; and, of this 10%, only 2% are enrolled in child development centers (Howard, 1973). A large majority of our preschool population still spends forty or more hours a week in custodial or minimal environments.

In speculation concerning early childhood intervention, Dokecki (1973) describes psychological development and competent functioning as "continuing achievements" of the young child rather than a natural, usual or automatic process. The locus for fostering such opportunity for "continuing

achievements" has become the day care center for an increasing number of children; and, responsibilities of parenting in early childhood are rapidly shifting from the home to the day care center (Keyserling, 1972). The fact that "There is no magic period ... and we've got to become concerned about blocks of time from 0-5" (Zigler, 1972), is but another indication that we must involve ourselves in what is happening to young children--our most important national resource.

Extensive research in human development confirms the first four or five years of life as the period of most rapid physical, emotional, and intellectual growth in the individual. The developmental phase from birth to six years is not merely crucial; it determines to an overwhelming extent the entire future pattern of life (Caldwell, 1962; Denenberg, 1964; Harlow, Harlow, & Suomi, 1971; Hess, 1964; Maslow, 1954; Skeels, 1965; White, 1971). Experience in the early years has profound, often irreversible effects; and cumulative deficits may occur, results of which inhibit realization of the original given potential of the individual (Ausubel, 1963).

The child who is denied opportunity of interaction with a stimulating and accepting environment during his preschool years; the child who has not spent these early years in "learning to learn" (Harlow, 1959), is already at a disadvantage when he reaches school age. When preschool growth is frustrated and unfullfilled, school systems are ill-equipped

to make up the deficits; and, the child is unable to benefit from new and increasingly complex experiences confronting him in the educational system (Bernstein, 1964; Bloom, 1964; Dave, 1963; Deutsch, 1963, 1964; White, 1971).

In Texas, minimum standards for day care require that "the activities of a day care center shall be planned for each group according to age, interest and capability of the children ... and shall provide opportunities for each child to develop physically, mentally, emotionally, and socially" (1971); however, there are no specific guidelines pertaining to the developmental or educational programs for children in day care. The great majority of day care facilities uses untrained personnel that is unable, sometimes unwilling, to do more than provide for the minimum physical needs of the young child. There is a tremendous need for day care facilities staffed with personnel that can not only guarantee the physical safety of the child but also contribute to and encourage his intellectual, emotional, and social development (Day Care In Dallas, 1973; Keyserling, 1972).

Texas standards also state that "training shall be provided or made available to all day care center personnel" (1971); however, the proprietary and the non-profit day care operator can seldom afford to pay highly trained staff and must depend on low status labor for child care persons (Keyserling, 1972). The fact that minimum wage laws were not extended to include day care personnel until the summer of

1972, made it possible for operators to hire child care persons devoid of skills, education, and/or experience that would bring them even minimum wage for employment. As a consequence, adults supervising children in all-day care frequently sought such employment because they had few if any alternatives for other work. The advent of minimum wage requirements applicable to day care has not greatly enhanced the qualifications of the labor pool available.

A center that has at least one teacher who has a background of professional experience in work with young children, a teacher who can direct and plan activities appropriate to developmental levels, can overcome other staff deficiencies to some extent. However, it is not unusual to find centers operating without any personnel that has a knowledge of child development. In such centers, opportunities to provide children with the skills that are normally developed during early childhood may be wasted and many of these children enter the school system under a handicap.

For those persons interested in improving their knowledge of child development and skill in working with children, the Dallas community offers a variety of educational and training opportunities. Programs are currently available at 1) universities - state and private; 2) public school systems; 3) Dallas County Community College District; 4) State Department of Public Welfare; 5) individual staff development programs; and 6) Dallas County Child Care Council (4 Cs) (See

Appendix A). Enrollment in these various programs is evidence of a nuclear child advocate movement within the child care community; however, there is little incentive or motivation for continuation in child care work because of the limited opportunities for increased financial rewards (Day Care In Dallas, 1973; Keyserling, 1972).

It is to the preschool children of Dallas--a population of approximately 98,000--50% of whom are children of working parents, that this study addressed itself (U.S. Dept. of Commerce, 1970). More specifically, it was concerned with the implication of an impoverished environment presented to a majority of these children in day care settings.

It was in recognition of the prevalence of untrained staff and the limited experiences provided for many preschool children in Dallas that the Training Component of 4 Cs established a program (June, 1972) designed to provide on-site training opportunities to day care centers. This program was made available to any day care operators who were interested in helping their staff get new ideas and acquire some insight into the quality of child care provided in their centers. The program developed provided concrete "how to" information on a practical level that could be implemented with a minimum of explanation and training. A "Learning Packet", color-coded to age levels and based on teaching "concepts," with suggested activities for language and perceptual skill development, was designed for presentation to director and

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staff at a training session conducted in the day care center (Freeman, See appendix D).

The following questions were directed to the 4 C's program for intervention in all-day care in Dallas County: Was the program worthwhile? Would day care personnel benefit from this type of limited training? Would children in all-day care show positive gains as a result of such a program?

Statement of the Problem

The purpose of this research was to evaluate the 4 C's program and materials for training day care staff by studying 1) effects on the level of intellectual functioning, and 2) effects on the level of visual perceptual functioning of three-year-old children enrolled in all-day care (Dave, 1963; Jensen, 1963; Wolf, 1964).

Rationale

This study was based on the following assumptions:

1) The processes of perceptual and intellectual development proceed normally under conditions of sufficient interaction with adequate environmental stimuli.

2) Child care centers often do not provide children with the opportunity for sufficient interaction with adequate environmental stimuli.

3) Children enrolled in all-day care at an early age who are subject to insufficient interaction with adequate environmental stimuli may reveal a retardation in perceptual and intellectual development.

4) Children revealing a retardation in perceptual and intellectual development at the time of entering the school system will be unable to receive full benefit of the opportunities offered in the public educational system.

From these assumptions it was hypothesized that children enrolled in all-day care under supervision of staff who had received orientation to the 4 C's program of staff training and materials would 1) achieve significantly greater gains in intellectual functioning, and 2) achieve significantly greater gains in visual perceptual functioning than children enrolled in all-day care in a control group.

Delimitations

The study was delimited to the following:

1) Two commercial child care centers located in a predominantly white middle-class suburban Dallas Community.

2) A time span of four weeks.

3) Thirty-five three-year-old children enrolled in all-day care.

4) Data of intelligence and visual perception testing.

Limitations

The study was limited by the following:

1) The lack of random selection or assignment of subjects.

2) The lack of control for teacher effects.

3) The lack of control for occasional teacher or subject absence during the experimental interval.

Definition of Terms

Adequate Environmental Stimuli. Social, emotional, intellectual, and physical stimuli in an amount that will meet developmental needs.

All-Day Care. Ongoing care provided for children for four or more hours daily.

Classroom. The room to which children in all-day care are assigned according to age level. They eat, sleep, and engage in activities under the supervision of a teacher throughout the day, on each day of the week, in the same classroom.

Commercial Day Care Center. Any place maintained or conducted, for profit, under public or private auspices which cares for more than six children during a part of the twenty-four hours of the day (Texas State Minimum Standards, 1971).

Control Group. Fourteen three-year-olds enrolled in all-day care.

Experimental Group. Twenty-one three-year-olds enrolled in all-day care.

Independent Variable. Program of materials for staff training designed by 4 Cs.

Intelligence. Dependent variable. A level of intellectual functioning measured by the Slosson Intelligence Test for Children and Adults (SIT) and expressed by an intelligence quotient (IQ) score.

Perceptual Development. Dependent variable. A level of visual perceptual development measured by the Marianne Frostig Developmental Test of Visual Perception (Frostig) and expressed by a perceptual quotient (PQ) score.

Sufficient Interaction. Opportunity for adequate and advantageous contact with environmental stimuli.

Teacher. The adult supervising a group of children in all-day care.

CHAPTER II

RELATED LITERATURE

Although day nurseries have existed in the United States since pre Civil War days, the enormity of the current unmet need for child care is unprecedented. Historical eventa and social forces have converged in creating this phenomenom that is destined to become the social issue of the seventies, i.e. the multi-faceted and complex problem of providing all-day care that will meet the needs of children, parents, and the community. To understand better the transition from day care for children whose families had some type of social pathology to "the child's right to quality day care," it is essential to consider the sequence of change in historical context (Butler, 1970; LaCrosse, 1971; White House Conference on Children, 1970).

The earliest American day nurseries were located in large cities and the impetus behind their establishment was largely philanthropic. The first of these, New York Nursery and Children's Hospital (1854), admitted children from six weeks to six years, and was founded for care of children of poor working mothers. As need increased, particularly by mothers widowed during the Civil War, many private individuals provided baby sitting for profit. Few of them offered more than custodial care and child abuse and deprivation were prevalent. Massachusetts was the first of several states to

set up "boards of charity" (1863) to inspect child care facilities; however, licensing was first required in Pennsylvania (1883) whose law stated that any person offering care to more than two children under the age of three had to obtain a license "from the mayor of the town or a justice of the peace or a magistrate of the locality" (Costello, 1972).

Both philanthropic and proprietary day care had increased substantially by the end of the 19th century; and in 1898, the National Federation of Day Nurseries was founded to encourage an increase in number of facilities and to promote health and safety standards in centers. The continued mistreatment of children provoked the first White House Conference on the Care of Dependent Children in 1909, when it was recommended that children be cared for in their own homes whenever possible and that assistance be limited to "reasonably efficient and deserving mothers who are without the support of a normal breadwinner." The Conference also urged higher standards for inspection and licensing of existing child care facilities; and, in 1912, the United States Children's Bureau was established to further this cause (Eliot, 1972; Costello, 1972).

Increased female employment during World War I expanded the need for child care but establishment of public facilities was discouraged by the prevailing view that group care was detrimental to infants and young children. The majority of working mothers preferred to hire someone to look

after their children at home; however, a day care center was considered a better alternative than institutional care which took permanent custody of the child (Costello, 1972).

Lab schools established on University campuses, such as Iowa, Yale, Columbia, and Minnesota, published findings of research in child development that stimulated a movement during the 1920s to set up nursery schools with child-study centers. This movement differed radically from day care for children of the poor. The latter was considered a necessary evil, established to take care of the unfortunates of society and had singular objectives of safety, cleanliness, and nourishment for children. In contrast, the child-study center was considered a supplement, not a substitute, for homecare, and was heralded as a beneficial learning experience for the young denizen of the middle- and upper- classes (Braun and Edwards, 1972; Costello, 1972; Eliot, 1972). As late as 1930, when the second White House Conference on Children was held, there were only about 800 day care facilities in the United States and most of these were located in big cities or near industrial plants.

During the Depression Thirties, the day care and nursery school movements came together to some degree when the Works Progress Administration (WPA) established facilities, primarily to provide jobs for unemployed teachers and other adults, but also to help mothers who needed to work. In these centers, children of the poor received some of the

advantages of preschool education that, previously, were unavailable to them. Public schools operated many of the WPA projects; however, upon the demise of the WPA in 1942, and subsequent termination of federal funding, efforts on the part of local authorities or groups of parents to keep centers going were largely unsuccessful. The cooperative nursery school movement that followed, like the pre-depression child-study groups, was not oriented to the need of children of the working mother (Braun and Edwards, 1972; Eliot, 1972).

It was not long after Pearl Harbor that the need for child care services became urgent and the Community Facilities Act of 1941 (Lanham Act), made possible the direct allocation of federal funds for construction and operation of day care centers for children of mothers in the wartime labor market. Day nurseries, supplemented by funding at the local level, operated in virtually every state in the Union.

Unique at this time were the Kaiser Child Service Centers in Portland, Oregon. Located directly at the entrance to each of two shipyards, these child development centers operated twenty-four hours a day, 364 days a year, from November 8, 1943, until September 1, 1945. A staff of qualified professionals inclusing social workers, nutritionists, educators, and nurses, was recruited from across the nation to assure the best possible services. An attitude of respect for parents and a determination to attempt to provide whatever services were needed were the prevailing philosophies.

Parents paid $5 weekly ($3.75 for a second child) and Kaiser absorbed the balance of the very high operating costs. These centers demonstrated that excellent child care facilities can be operated by and to the advantage of industry. However, the hope that this was a pioneering effort which would lead to a vast peacetime development of quality child-caring facilities was never realized. When the war ended, the nurseries closed, and all that was learned from the Kaiser centers seemed to disappear overnight from the national thinking (Hymes, 1944; Morgan, 1967).

At the war's end, federal aid was cut off and only four states--California, Massachusetts, New York and Washington--provided funds sufficient to keep centers open. By far the most successful of these were the California Children's Centers, operated by school districts. In those communities that did try to operate programs without public funding, the quality of care and services declined and, in most cases, lead to failure (Child Day Care and Working Mothers, 1965).

During the late 1950s and early 1960s, there was a growing awareness of the influence of environmental factors on the intelligence and development of children. Research began to point to infancy and early childhood as critical periods for intellectual development. Bloom's classic study, Stability and Change in Human Characteristics (1964), added considerably to earlier assumptions; and, the Head Start Program was mobilized in 1965, as a salient force in the"war on poverty." The preschool program was oriented to a broad range

of objectives believed to be appropriate for children; and, programming was essentially of an "enrichment approach" to overcome deficiencies characteristic of children of poverty. The Head Start centers survived a storm of criticism and controversy following early reporting of no significant or lasting effects (Westinghouse Study, 1969) and have continued to gain favor among professionals as well as people from all socio-economic levels. In 1970, the Kirschner Associates Study concluded a positive influence in forty-four out of forty-seven changes investigated in depth.

The Head Start Program focused attention on young children as never before and the extreme importance of the first four or five years of life came as a shock to most people. The growing employment of women, demands by the Women's Liberation Movement for universal day care centers for all children, and a closer look at the quality of life in the United States, have brought pressure for a peace time mandate of quality care for all children (Butler, 1970; Braun and Edwards, 1972; Orth, 1973). In 1970, The White House Conference on Children prepared a day care Statement of Principles outlining a primary objective to meet the needs of all children for experiences which will foster their development as human beings (U.S. Dept. HEW, OCD, 1971).

The need for more and better child care services became a national priority; and, out of concern by members

of Congress, the concept of Community Coordinated Child Care (4 Cs) was born. In recognition of the day care crisis as everybody's problem, the OCD was given the overall responsibility (1969) of encouraging communities to take a comprehensive and coordinated approach to all services for children, including day care and pre-school services. Because of an emphasis on local initiative, no new Federal funds were provided, and communities were encouraged to seek support from a variety of sources, both public and private, according to their local needs and objectives. This program was designed to activate and coordinate resources, skills, and talents of providers, consumers, and supporters of the local child care community toward achieving the most advantageous services for children. Under a structure of flexible Federal direction on a regional basis, a variety of programs have successfully coordinated local, state, and federal resources to meet obvious child care needs at the community level. Not the least of these efforts has been the attention directed to training programs for day care administrators, teachers, mothers, and aides who will work in day care (U.S. Dept. HEW-OCD, Children's Bureau, 1971; Guide and Resources for 4 Cs, 1971; Williams, and Schermoly, 1972; Meyer, 1972; Office of Early Childhood Development in Texas, 1971; 1972; 1973).

A 4 C's program was initiated in Dallas in 1971; however, it was terminated in July of 1973. Apparently the Dallas Community was not yet ready for the kind of cooperation inherent in the 4 C's model, and there was not sufficient

interest or motivation to continue funding of the program (Freeman, 1973).

In January of 1971, the Office of Early Childhood Development (OECD) was established as a part of the Texas Department of Community Affairs, as the State mechanism for the coordination of planning of early childhood development programs. The function of OECD is that of "providing leadership in assessing the needs of all children in Texas, in developing programs to meet the needs of children, and in coordinating programs and ancillary services to produce the most effective delivery of services responsive to children and their families' needs..." p. 15 (OECD, 1971).

In addition to a state plan for early childhood development in Texas (anticipated completion, August, 1973), OECD is currently working in the following areas (OECD, 1973):

1. DEMONSTRATION PROJECTS: To show that a variety of health, educational and social needs of children and families can be met through a coordination of efforts, OECD has provided funds and technical assistance to eight counties and five special projects (one special project covers 26 counties); conducted two workshops, each attended by some 25 county planners, involved 34 county planners in 1) forming steering committees--membership totaled 143 parents, officials, agency representatives and interested citizens, 2) holding group meetings and using other techniques of determining needs--a minimum of 3,781 persons participated, 3)exploring resources through 17 major public and private agencies, and 4) designing a program; showed that sponsorship can be varied among independent school districts, Community Action Agencies, Council of Governments, private non-profit child care centers and a mental health-mental retardation consultation center.

2. CHILD DEVELOPMENT ASSOCIATE TRAINING: To set up pilot projects that would train a new category of

child care worker, a person specifically trained to work with prekindergarten children based on proven competency, OECD has set up seven training sites at Texas colleges, universities, and a junior college involving about 40 members of home economics and education faculties, helped in training some 200 prospective CDAs, involved four state agencies and other CDA trainers in a cooperative review of training sites.

3. PUBLIC EDUCATION AND INFORMATION: To inform the public about conditions of Texas children and convey practical information about health, nutrition, importance of the family and other topics, OECD has started Pierre the Texas Pelican, an education series for first-time parents that reached 2,800 parents the first month (July, 1973), anticipated to reach 80,000 parents with one-half million mailing by July, 1974; surveyed 45 programs for children and families administered by state agencies and 44 programs by private organizations; and distributed more than 5,000 copies of results published in Early Childhood Development in Texas, 1972; mailed 19 articles on various aspects of early childhood development to some 550 Texas newspapers serving more than 3.2 million readers; distributed more than 600 lists of reading matter on early childhood development topics.

4. HEAD START TRAINING AND TECHNICAL ASSISTANCE: A new section transferred to OCED in June, 1973, and charged with helping the 200 Head Start centers in Texas serve their children. OECD has made plans to hold a statewide workshop in September to help Head Start directors carry out their responsibility to serve handicapped children; completed plans to provide training and technical assistance to other components of Head Start programs.

During the academic year of 1971-72, a research project on child development policy for Texas was conducted at The Lyndon B. Johnson School of Public Affairs, University of Texas at Austin. The project team consisted of sixteen graduate students and three faculty members under the direction of Jurgen Schmandt. On a background of information prepared

for the Advisory Committee on Child Development Policy (newly established by the National Academy of Sciences-National Research Council in response to an invitation from HEW), the work was geared specifically to issues of interest to the Texas OECD and the State Legislative Budget Board.

Although this Report identified steps essential to developing a comprehensive state policy for children, it does not prescribe a particular policy or set of policies. The goals of the study were 1) to assess child development policy in Texas from two perspectives, programmatic and systematic; and 2) to present options available for correcting administrative and legislative deficiencies that currently stand in the way of providing services to the children of Texas.

In summary, the Report states:

> Child development policy, like most social policy is made in Washington. This is true for legislative authorization, administrative rules, and funding of major programs. On the basis of its study and analysis, however, the Child Development Policy Research Project has concluded that the state's response to federal policy allows for more initiative and innovation than is generally assumed. Specifically, this Report proposes that:
>
> 1) The state can build around existing federal programs a statewide system of services addressed to the diverse needs of Texas children;
>
> 2) The state can increase the number and quality of services offered without waiting for new national legislation; and
>
> 3) The state can overcome the present separation of services by developing comprehensive programs.

Evidence of the growing concern for child care services in the Dallas area is the spontaneous movement for a

Child Care Action Committee during the Fall of 1973. This movement, representative of more than thirty-five participating organizations, includes the leaders of the child care community and has stated goals of 1) increased and improved child care services and full utilization of the resources of the City of Dallas--thus giving more families the opportunity and means to become self-supporting citizens, and 2) the safety of all Dallas children through the availability of good child care services for families who must work (Beer, 1973).

The recently formed Child Advocacy Advisory Committee to the City Council of Dallas (Fall, 1973) is a working committee made up of people who are experienced or have an interest in the area of early childhood development. The purpose of this committee is to make recommendations to the City Council concerning services to the children of Dallas (Resources; Early Childhood, 1973).

The League of Women Voters of Dallas have prepared two publications, Day Care In Dallas (1973), and Day Care Dilemma (1972). These reports of the results of a study conducted by League members emphasize unequivocally the need for expanded day care services, particularly of quality services.

Details of the needs for day care in the West Dallas community are outlined in a study by Gonzalez (1973). This area of Dallas has long been recognized as one with high frequency of social disorganization and is still in need of adequate day care facilities.

Current literature relating to the research and reporting of various methods of staff training for day care personnel stems primarily from concern for the disadvantaged child. The focus is on the teacher in preschool programs of compensatory education that have been developed to offset or reverse the effects of deprivation in the early home environment. Realization of the singular importance of adult-child interaction in these programs has made public funds available to support professional expertise in programming and staff training (Day Care Staff Training, 1971; Frost and Rowland, 1971).

The Far West Laboratory for Educational Research and Development conducts a two-week workshop for training Program Advisors who help Head Start teachers use Responsive Environment methods and materials. Included in these workshops are specific materials and instructions on classroom arrangement, written learning episodes and tests which suggest teacher behaviors, video-taping and critiqueing, use of films and film clips, and workshops to make materials and games. Additional to the pre-service training program are three one-week workshops during the year. Prior to the opening of school, Program Advisors conduct four-day workshops for teachers and assistants and follow these with weekly in-service meetings related to training received from the lab. Each classroom is visited by a Program Advisor at least three hours every two weeks to observe, demonstrate, and consult with teachers (Nimnicht, 1971).

The Martin Luther King, Jr. Center for Parents and Children provides training for teachers, assistant teachers, cooks, and volunteers to help them gain knowledge and develop skills through "living and learning together." By planning family rooms, arranging toys and equipment, visiting professionals and representatives of related programs, visiting toy stores, reading from books, magazines, catalogues, and bulletins, and planning experiences for the children at the center, staff is introduced to a wide spectrum of enrichment activities and experiences for children (King, 1971).

In Riverside, California, a pilot project in supplementary training for professionals and non-professional staff members of Head Start incorporated a variety of methods in teaching; and, standards established for required courses were not "watered down" for career progression candidates. Criteria for selection of trainees included 1) a high degree of motivation and exceptional personal application; 2) spiritual strength and intestinal fortitude; 3) enthusiasm, vitality, and a desire to be a teacher; and 4) volunteer services in the classroom demonstrating competence. Several colleges and volunteer services provided curricular innovations available through four-year college programs and community colleges, as follows:

1) At the College of the Desert, the development of a group of courses, entitled "Teacher Aide Training". A total of twenty-four credits included work in Child Growth and Development; Special Methods; Latin-American Culture and Negro Heritage;

School Health; Safety and First Aid; Committee Liaison and Leadership; School Personnel Relationship; Music and Art.

2) Credit was offered for an upper division psychology course by university extension.

3) In-service courses completed by supplementary training participants were reviewed in relation to the Nursery School Certificate Program of the Community Colleges.

4) At Mt. San Jacinto College, concentrated summer school courses were offered in creative learning and school art.

5) At Riverside City College, an eight-week Spanish program of three-level courses was designed for the Mexican-American Head Start employees. These credits met the language requirements for the BA degree. Participants translated, for publication in Spanish, a Head Start information brochure.

6) Twelve participants enrolled in an eight-week resident program on the University campus in Riverside. They earned a total of 137 units with a grade point average of 2.38. All work was accredited toward a degree. Tutors were available to help the participants immediately upon enrolling in each course.

7) Course prerequisites were raised, transcripts of credits interpreted liberally; classes were scheduled so participants could enroll and other changes were made to remove roadblocks to educational advancement (Diaz, 1971).

An intensive training program designed to train parent volunteers, teachers, and assistant teachers acting as a team for Head Start personnel was proposed by Pacific Oaks College in Pasadena. Objectives were to develop initiative and curiosity; confidence in one's own ability to achieve insight and implement growth; skill in developing a program of continuing education for parents, teachers, assistant teachers, and other community-related people; increasing knowledge of

required content areas; and skill in designing projects and activities which draw agency participants into active involvement. The intensive training sequence included a three-week residence experience, followed by a two-week on-site experience a one-week residential follow-up, and subsequent on-site conferences over a nine-month period. A travelling laboratory for on-site visits, enabled staff to provide workshop experiences for students. Methods included active encounters with materials and experience in use of tools and materials for constructing goal-directed as well as open-ended products and play equipment; planning and creating of play areas and play equipment; music and movement workshops; and introduction to play with cognitive games, such as Cuisenaire Rods, balance beams, etc. Weekly discussion groups were directed by professionals in the areas of personal and professional growth which included role playing, conferences and opportunities for students to listen and be listened to. Annual student projects in written, oral, or pictorial form, discussion and directed reading, encouragement to generalize and abstract from other experiences, and written reports of practicum observation, helped students learn to organize ideas and materials (Pacific Oaks College, 1971).

The Training and Career Development Program for staff and parents of Head Start consists of three areas: 1)career development or secondary and higher education curricula; 3) in-service training; and 3) parent training. Extra pay for successful participation in the program, involvement

of parents and staff in planning training sessions, use of classroom materials and a graduated introduction into roles and responsibilities constitute the core of the program (Jones, 1971).

The University of South Dakota conducts in-service training for curriculum enrichment of teachers and teacher assistants in the South Dakota Indian Head Start program. Under this model, three people from each center attend off-side workskops given by DARCEE (Demonstration and Research Center for Early Education) staff on methods and materials. These trainees, in turn, train personnel in their own centers. Workshops and visits to all centers by DARCEE staff continue throughout the year (Henstra, 1971).

The Office of Economic Opportunity (OEO) was generous in funding and supporting teacher education during the 1960s and the early trend of these training programs was for short term institutes. They were usually conducted in the field and took place in or near the population of children to be served. This particular type of program is now used infrequently but it was very important as late as 1965. In general, evaluators of the programs found them to be "flexible, innovative, and responsive." These programs laid the groundwork for a system of coordination among schools, communities, and the government.

Typical of an OEO program was an eight-week teacher-aide training program carried out by Arizona State University

at Tempe and its Indian Training Center. The program emphasized workshops and discussions in child development and the University lab school was used for demonstration. Directors of this program believed that it motivated the participants, assisted them in acquiring more fluent English, and helped familiarize them with the use and the skill of common educational media. An important part of the program was the support of the self-concepts of the participants and their culture, which they, in turn, might communicate to the children (Frost and Rowland, 1971).

The National Defense Education Act (NDEA) programs tended to be more focused than did the OEO programs; however, the two programs shared virtually the same objectives. Most manifest in both programs were efforts to effect change in attitudes and values as they influence the teachers' interactions with the children (Frost and Rowland, 1971).

A nine-months' program, consisting of three 3-month phases was developed by the Center for Early Development and Education in Little Rock, Arkansas. The curriculum consists of 1) intensive classroom training in principles of child development and day care; 2) a practice period during which time the trainee spends relatively more time in the classroom but continues to receive daily supervision and instruction; and 3) a day care internship, during which time the trainee functions as a regular employee of the Center under continued supervision and adjusted salary levels (Caldwell, 1971).

A comprehensive program to serve the Puget Sound Area in Washington through resources available at the consortium institutions was established for training day care administrators, agency staff members, supervisors, teachers, aides, social workers, social work aides, and home day care mothers. The curriculum varied according to the staff to be trained. On-site training with an instructor observing at a facility and conducting a class based on what had been observed is the primary method of training (Johnston & Prindle, 1971).

A mobile field team training program to provide instruction to all staff of day care centers for improving their skill was developed out of Michigan State University. Under this program, a team of specialists spends a given amount of time each week in a center providing training and program support. The training team brings special mobile units equipped with video-tape and other teaching equipment. Initially, the unit visits one day a week and the interval between visits increases as the skills of the trainees increase. Training continues for as long as desired by the staff (Boger, 1971).

That the teacher plays a crucial role in implementation of preschool curriculum is the conclusion of Klein (1973) after several years of work with an experimental project in planned variation of curriculum. The project was designed to observe, measure, and compare strengths and weaknesses of several curricula approaches. Klein observed that

a teacher must not only be fully aware of the role as it is prescribed by the model but she must be willing to perform in that role at all times. In contrast to the prescribed role, Klein discusses the "style" of the teacher which is the teacher's manifestation of her interpretation of the role. In short, it is the teacher who makes or breaks the model; and, "without the teacher, the curriculum is just a lifeless piece of paper."

The comprehensive report of day care at the national level, conducted by the National Council of Jewish Women (1971, presents a revealing picture of real deprivation existing in over 56% of the proprietary and private non-profit day care centers. An additional 35% provide what is described as "poor" quality care. The absence of competent staff and the inadequacy of adult-child ratios are key problems in these centers offering care to the non-poverty child. This report is further evidence of a day care crisis that is nationwide (Keyserling, 1972).

In response to the challenges of increasing the level of competency and enhancing the quality of child care services, OCD created the concept of the Child Development Associate (CDA) for training professional staff in the field of child care. The objectives of the CDA program are to provide well-trained, competent, professional men and women to assume responsibility for the daily activities of groups of preschool children. The key feature of this program is that

The credential of the CDA will not be based solely on courses taken, academic credits earned, or degrees awarded, but on careful evaluation of each candidate's demonstrated ability to assume primary responsibility for the education and development of a group of young children. CDA training is highly individualized and time in training will depend on an individual's previous experience. It combines a thoughtful combination of theoretical preparation in child development and early childhood education with practical, on-the-job experience. Assessing and credentially are responsibilities of the CDA Consortium, a private, non-profit organization composed of groups concerned with quality child care (Klein, 1973).

Until recently, recognition of the problems of the marginal- and middle-class child in day care has been limited. However, well-documented reporting of prevailing inadequacies in all child care services has led to introduction of legislation at the national level that will provide for all children, rather than singling out the child of poverty.

"You Can't Recycle Children" was the title of an address delivered in Dallas (October 12, 1973) by Jule Sugarman, Director of Human Resources in New York City. Mr. Sugarman referred to the multi and overlapping, sometimes duplication of programs directed to children. He stated that the aggregate of all of these programs does not meet the need,

not because the legislation has not been passed, but because the funds have not been allocated. He has proposed a Children's Trust Fund to be gathered from general tax revenues at the rate of 75¢ weekly for every child under 18 years of age. These monies will be marked to be used only for children and are to be distributed among the states on a basis of the number of low income children. The distribution of funds received at the state level will be left to the discretion of state authorities.

The Bill, #S2358, has been introduced to the Finance Committee by Senator Ribicoff and will reach the floor of the Congress in the Spring of 1974.

CHAPTER III

METHODOLOGY

Sample

The subjects of this study consisted of 35 three-year-old children enrolled in all-day care in two commercial day care centers located in a predominantly white middle-class subjrban community of Dallas, Texas. These centers were selected as representative of commercial licensed child care available to the middle-class parent in metropolitan Dallas. In an earlier study (March, 1973), the 4 C's program was tested for effects on a sample selected as representative of licensed child care available to the middle-class parent in a predominantly black community of metropolitan Dallas. This investigator believed it was of value to enlarge the sample to include the predominantly white middle-class community, in the event that it might become desirable to combine data from the two studies at a later date. (See Appendix C).

The fact that the sample was predominantly, if not entirely, white middle-class preschool children is not an effect of discrimination by the day care operators. This phenomenom is a result of de facto segregation within the residential patterning in the Dallas metropolitan community. These patterns do not encourage, by convenience of location,

the comingling of various ethnic groups of preschool children. Although these operators evidence a desire for a representation of the minorities, there is only an occasional child enrolled who falls into this category.

The two centers selected were matched as nearly as was possible in the following manner:

1) Geographical location

2) Commercial Day Care as opposed to non-profit or public-funded day care

3) Enrollment capacity, N = 100

4) Problems of staffing, i.e. difficulties in employing knowledgeable child care personnel

5) Problems of staff development, i.e. lack of time, funds, and qualified instructors within the center

6) Problems of maintaining a stable nucleus of child care personnel, i.e. the frequent turnover of staff

7) Similarity of facilities in equipment and implementation of program

One center housed the experimental group, the control group was located in the second center. By using two separate locations, it was possible to avoid the comingling of children and/or teachers in the experimental and the control groups (See Appendix C). Selection of the experimental group was controlled by expedience, i.e. convenience, cooperation, motivation, and interest of the operator of the day care center.

Instrumentation

The criteria for selection of instruments of testing was:

1) Time involved in administering tests

2) Ease of administration of tests

3) Tests that were easily scored

4) A test that would differentiate intelligence

5) A test that would differentiate visual perceptual abilities

6) Tests that possessed a high degree of validity and reliability

The instrument selected for testing the level of intellectual functioning was the SIT. This test, designed with ease of administration and brevity in mind, was standardized on children and adults drawn from the urban and rural populations in New York state. The sampling represented a range of socio-economic levels and ethnic groups as well as the disturbed, the deviant, and the retarded. The final construction of the SIT contained items that were easy to administer (15-20 minutes) and to score, and were similar in nature to the valid Stanford-Binet, Form L-M (SB-LM) tasks (Slosson, 1963). The SIT has a higher ceiling for adults and a lower base for children than the SB-LM.

In establishing concurrent validity of the SIT, the SB-LM was used as criterion and comparative results on a sample of 701 subjects yielded a correlation coefficient

of .95 (Slosson, 1963. A more recent study, reported by Armstrong and Jensen (1970), was conducted on a sample of 490 students enrolled in 10 Massachusetts public school systems. The overall correlation coefficient between the SIT and the SB-LM was .93, $p < .001$. Correlations for the 20 subcategories ranged from .89, for ages eight through nine years, to .96, for age thirteen years, all of which were significant beyond the .001 probability level. Pate and Nichols (1970) reported a high overall correlation coefficient between the SIT and the Wechsler Intelligence Scale ($r = .84$) on a sample of 100 students enrolled in the Virginia public schools.

Contradictory to the findings of earlier validity studies is the report of Ritter, Duffey, and Fischman (1973). A sample of 44 children, ages 4.4 through 12.11 years, were referred by their classroom teachers for psychological evaluations in order to determine the appropriateness of their present educational programs. The means and standard deviations of the SIT and the SB-LM were as follows: SIT $\bar{X} = 99.9$, s.d. = 15.74; SB-LM $\bar{X} = 95$, s.d. = 14.05. A significant difference between the overall means ($p < .001$) and significant mean differences ($p < .01$) between SB-LM and SIT IQs for the above average and the below average classifications of intellectual functioning were reported. Also significant ($p < .01$), for both the four- through six-year-old group and the seven- through nine-year-old group, were the mean differ-

ences between the SB-LM and SIT IQs. A correlation coefficient of .92 reflected a high relationship in the ordering of individuals; however, the age-independent nature of the IQ was supported by correlation coefficients of .11 and .03 between IQ and age for the SB-LM and the SIT, respectively. The authors suggested that correlation coefficients, alone, cannot guarantee the accuracy of intelligence estimates resulting from the administration of the SIT.

The Gesell Developmental Schedules were used as a model for items and tasks appearing in the infant and early childhood sections of the SIT. Because the SB-LM does not contain an infant section, the Catell Infant Intelligence Scale was used in establishing validity; and, a correlation coefficient of .70 was found for a group of 20 infants under two years of age. In a small sample of 16 bright two- and three-year-olds, a correlation coefficient of .93 was obtained between the SIT and the SB-LM (Slosson, 1963).

Much of the research on validity of IQ of infants and children under four years of age is questionable; however, it appears that the very high or the very low scores have more credibility. Ames (1966) reports the SIT as providing a "reasonably valid and reliable measure of a child's intelligence," and she recommends it for use in the first three years of life when a trained developmental examiner is not available.

The high validity coefficients between the SIT and

the SB-LM are, in a sense, reliability coefficients. It was Slosson's intent to construct an abbreviated form of the SB-LM and the fact that there is high correlation ($r = .95$) between the SIT and the SB-LM is indication that both tests appear to be measuring the same thing and that the reliability of the SIT approximates the reliability of the SB-LM. On a test-retest interval of two months, Slosson (1961) reported a reliability coefficient of .97 on a sample of 139 subjects, with mean IQs of 99.0 and 101.3, and standard deviations of 24.7 and 25.1, respectively. Further investigation into the validity and reliability of the SIT, when administered and scored by teachers, reported results supporting Slosson's original intention to construct a valid and reliable intelligence test that could be easily administered and scored (Hammill, 1969).

The instrument selected for measurement of the level of visual perceptual functioning was the Frostig. The standardized norms of the Frostig were based on nursery and public school children, ages three to nine years, drawn from a sample that was overwhelmingly middle-class in nature. Normative curves drawn from this sample indicated that maximum perceptual development in the areas measured (eye-hand coordination, figure-ground perception, form constancy, position in space, and spatial relationships) occurred between the ages of four and seven, with a reduction in development following the seventh year when cognitive functions begin to predominate

(Piaget, 1952).

The test was designed primarily for use with young children. A deviation score or perceptual quotient may be obtained from the sum of subtest scale scores after correcting for age variation. The PQ is not to be construed as a measure of a fixed ability. It is only an indication of visual perceptual functioning. However, it seems logical to assume that a child attaining a low (retarded) PQ will not profit as much from everyday experiences as a child with a normal PQ. As a consequence, such children may continue to evidence learning difficulties even after they have reached a perceptual age level necessary for beginning academic learning.

In establishing validity of the Frostig, a correlation study relating teacher ratings of classroom adjustment, motor coordination, and intellectual functioning to scores on the Frostig yielded correlation coefficients of .441, .502, and .497, respectively, in a sample of 304 kindergarten children. On a Chi-square comparison of the same scores, values of 45.6, 37.15, and 41.9, respectively, were found to be significant ($P < .001$) (Frostig, et al, 1961). Using the Goodenough test as an indicator of intellectual functioning, of perceptual development, and as a projective technique, a study exploring the relationship between factors measured by the Frostig and those assessed by the Goodenough was reported as follows: kindergarten children ($N = 299$) $r = .460$; first

grade children (N = 202) r = .318; and second grade children (N = 214) r = .366. The relatively low reliability of the Goodenough Intelligence Quotient (reported by Goodenough (1955) as .77, computed on a split-half method) may be reflected in these low correlation coefficients; however, they also indicate that the two tests are measuring relatively distinct factors. There was some degree of overlap which was most evident at the lower level (Maslow, et al, 1963). An experimental study predicting that children between the ages of four and one-half and six and one-half, having visual perceptual quotients of 90 or below, would not attempt to learn to read because of their perceptual retardation, proved highly accurate. None of the children with PQs below 90 learned to read, and only one of two children with a PQ of 90 learned to read (Maslow, 1963). Additional research in beginning reading situations (Berkov, 1963; Goins and Sprague, 1963; Maslow, 1963) tends to substantiate the relationship between developmental level of visual perception and success in reading.

A reliability coefficient of .98 on a sample of 50 children with learning difficulties was reported on a test-retest study with an average interval of three weeks, when the Frostig was administered individually by the same trained psychologist (Frostig, Lefever, & Whittlesey, 1961). A reliability study in 1961, (Frostig, Maslow, Lefever, & Whittlesey), of tests administered to first- and second-graders on a test-retest interval of two weeks, reported a correlation

of .80; however, the subtest scale score test-retest correlations ranged from .42 to .80. To further determine test-retest reliability, 127 kindergarten and first grade children were administered the Frostig three weeks before the close of the school year. The lower correlation (r = .69) was attributed to the emotional state of the subjects as well as the environmental influences at the time of retesting, i.e. excitement and disruption of school room routine.

In obtaining a split-half reliability correlation coefficient for the total test, a total left-half score and a total right-half score was first obtained through a random selection of items. A split-half reliability correlation coefficient was obtained for each of three random combinations, averaged, and corrected by the Spearman-Brown formula. Split-half reliability correlation coefficients on tests of children in the sample aged five years or older (N = 1459) ranged from .89 to .78, respectively. The decrease in reliability with an increase in age can be expected as an indication that cognitive functions are predominating (Maslow, 1963).

A recent study reported by Hammill, Goodman, and Wiederholt (1971), challenged the validity of the Frostig when used in testing economically disadvantaged children and suggested that the validity of this instrument has not been sufficiently demonstrated.

Design

Due to the absence of pre-experimental sampling, a

nonequivalent control group design was used. This design, classified by Campbell and Stanley (1963) as quasi-experimental, involves an experimental group and a control group, both of which receive a pretest and a posttest. The groups consisted of intact classrooms and were as similar as expediency permitted. As similarity of means and variances on a pretest increased, control became more effective for purposes of internal validity, i.e. effects of history, maturation, testing, and instrumentation. However, this design was not sufficient to explain away interactions between these variables and specific selection differences that might distinguish the experimental and control groups, thereby threatening internal validity. A selection-maturation interaction may be present occasionally, even when groups are identical in pretest scores.

Regression, the other major internal validity problem for this design, was not considered a significant threat because neither group was selected for its extreme scores. The fact that two natural groups were available and that assignment of the independent variable was assumed to be random and under control of the experimenter, aided in the approximation of true experimentation (Campbell & Stanley, 1963).

This design does not control for external validity; and, the reactive effects of testing, the interaction of selection and the independent variable, and the reactive effects of the experimental situation can preclude generalization beyond the limits of the sample tested. However, the strength

of internal control took precedence over considerations of external validity for the purposes of this research. Although the selection of a design strong in both internal and external validity is the ideal, Campbell and Stanley (1963) have pointed out that internal validity should not be sacrificed to achieve external validity.

Procedure

During the month of August, a representative of 4 Cs conducted a workshop-training session for the director and staff in the day care center assigned to the experimental group. Particular attention was directed to the teachers of the experimental group in an effort to make certain that they had understood the purpose of the study and the importance of their position as agents presenting the 4 C's program materials. The investigator was present during this session and also met in additional consultation, daily, during the time of pretesting of the experimental group. These daily meetings were directed to discussion of child development theory and implementation thereof, as well as further reference to use of the program materials.

Following the orientation session, the program materials were left in the possession of the experimental teachers. For a period of approximately three weeks, these teachers had an opportunity to work on materials and programming before they were introduced into the experimental group.

A written communication explaining the study was addressed to parents of each participating subject in both the

experimental and the control groups. Parents of subjects in the experimental group also received a letter on the Friday preceding the introduction of the treatment--a letter that would encourage interaction between parent and child regarding the child's perception of shapes. At the end of the first week of treatment, parents of experimental subjects received a second letter encouraging interaction with their children regarding the concept of colors (See Appendix B).

Pretesting of the experimental group was conducted by the investigator during the first two weeks in September. Each subject was administered the SIT, individually, during the morning hours. Following completion of the testing schedule for the SIT, the investigator administered the Frostig to the subjects in the experimental group, individually, during the morning hours.

Pretesting of the control group was conducted in the same manner and sequence and immediately followed the completion of the pretesting of the experimental group.

At the end of a four-week period dating from the day of introduction of the curricula to the experimental group, investigator began posttesting of the experimental subjects. The SIT and the Frostig were administered, individually and during the morning hours, as in the pretest schedule. Immediately following the completion of the posttesting of the experimental group, investigator conducted posttesting of the control group in the same manner and sequence.

The investigator scored and calculated all of the SIT tests. To eliminate experimental bias, all of the Frostig tests were scored by a doctoral candidate in Clinical Psychology. All of the individual PQs were calculated by investigator because the tables in the Frostig manual are not provided below the four-year-old age level.

Intervention

"Learning Packets" containing materials which encouraged teaching of concepts, such as color or size or shape, constituted the nucleus of the curriculum-training program developed by 4 Cs. Basic to the materials was the use of books and each packet contained from seven to ten books in which a specific concept was used as a theme. The books used were provided through the Community Education Department of the Dallas Public Library. Suggested activities for language and perceptual skill development were included as well as activities to supplement the regularly planned program of the center. Instructions for duplicating all of the teaching aids were included and the materials to be developed were inexpensive, utilizing "throw-away" items if possible (See Appendix D).

Although this research was concerned solely with testing for effects within the three-year-old age group, the 4 C's materials were shared with the entire staff of the day care center for use with their respective age groups.

CHAPTER IV

RESULTS AND DISCUSSION

Results

Two subjects in the experimental group were withdrawn from the day care center shortly after administration of the pretests. For this reason, the experimental group was reduced to 19 subjects, leaving a total sample of 33 (N = 33). The age-range in the experimental group was 35 to 45 months (mean-age = 41.42); and, the control group age-range was 36 to 48 months (mean-age = 43.85).

The scale scores on the individual subtests of the Frostig were calculated by using the formula $\frac{PA}{CA} \times 10$. The resulting scale scores were summed and multiplied by two to obtain the approximate PQ score of each subject (Frostig, Lefever, & Whittlesey, 1966).

To further establish pre-experimental equivalency of the experimental and control groups, a two-tailed *t* analysis was made to test the null hypotheses, 1) there is no significant difference between experimental and control group pretest IQ scores; and 2) there is no significant difference between experimental and control group pretest PQ scores. The critical level for determination of significance was set at .01, thereby reducing the probability of committing a Type I error to one chance in one hundred

(i.e., rejecting the null hypothesis when it is in fact a true hypothesis).

When the number of subjects in each of two groups differs minimally ($N_1 = 19$; $N_2 = 14$), the error in $\underline{t}$ is negligible and may be ignored (McGuigan, 1968); and, the following $\underline{t}$ formula for two randomized groups was used in testing the null hypotheses:

$$\underline{t} = \frac{\bar{X}_1 - \bar{X}_2}{\frac{\sigma_1^2}{(N_1 - 1)} + \frac{\sigma_2^2}{(N_2 - 1)}}$$

where: $\bar{X}_1$ = mean of the experimental group

$\bar{X}_2$ = mean of the control group

σ_1^2 = variance of the experimental group

σ_2^2 = variance of the control group

N_1 = number of subjects in experimental group

N_2 = number of subjects in control group

$df = (N_1 + N_2) - 2$

The $\underline{t}$ score of 1.177, obtained in testing for a difference in the pretest IQ scores on the SIT, proved non-significant ($P > .20$; $df = 31$); and, the null hypothesis of no difference between groups was supported. The $\underline{t}$ score of .288, obtained in testing for a difference in the pretest scores on the Frostig, proved non-significant ($P > .70$; $df = 31$); and, the null hypothesis of no difference between groups was supported. The means of pretest scores were as follows: experimental group, SIT = 123, Frostig = 99; control group, SIT = 118, Frostig = 98. A summary of data

analysis from the SIT and the Frostig pretest scores is presented in Table I.

Table I

Summary of Pretest Data

	Experimental Group		Control Group	
	SIT	Frostig	SIT	Frostig
Mean	123*	99**	118	98
S.D.	10	9	13	10
Variance	100	86	173	100
Range	105-139	84-118	94-141	78-108

*N.S. ($P > .20$) $t = 1.177$ **N.S. ($P > .70$) $t = .288$ $df = 31$

As a result of the pretest findings of no differences between the experimental and control groups, the posttest results were not covaried. The following assumptions were made: 1) the dependent scores were independent; 2) the variances of the groups were equal; 3) the population distribution was normally distributed; and 4) the treatment effects and the error effects were additive.

To test the empirical hypotheses that children enrolled in all-day care under supervision of staff who had received orientation to the 4 C's program and materials for staff training would 1) achieve significantly greater gains in intellectual functioning; and 2) achieve significantly greater gains in visual perceptual functioning than children enrolled in all-day care in a control group, a one-tailed t test for randomized groups was used to analyze the results of the SIT and the Frostig posttests. The critical level for

significance was set at .01.

A summary of the analysis of data obtained from posttest scores of the experimental and control groups on the SIT and the Frostig is presented in Table II. The means of posttest scores were as follows: Experimental group, SIT = 129*, Frostig = 114**; Control group, SIT = 119, Frostig = 104. The t score of 2.253, obtained in testing for a difference in posttest IQ scores, was non-significant at the .01 level ($P < .025$; df = 31); and, research hypothesis #1 was rejected. The t score of 2.777, obtained in testing for a difference in posttest PQ scores, was significant at the .005 level ($P < .005$; df = 31), and supported research hypothesis #2.

Table II
Summary of Posttest Data

	Experimental Group		Control Group	
	SIT	Frostig	SIT	Frostig
Mean	129*	114**	119	104
S.D.	12	10	13	11
Variance	137	88	170	111
Range	110-155	94-130	90-145	84-118
*N.S. ($P < .025$) $t = 2.253$		**S. ($P < .005$) $t = 2.777$	df = 31	

A further analysis of the SIT testing results was made to determine the gains made in IQ by each individual group. The pre- and posttest results of each group were tested for significance by using the following t formula:

$$\underline{t} = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2 + \sigma_2^2}{N}}}$$

where: N = 19 = experimental group, or

N = 14 = control group

$\bar{X}_1$ = mean of SIT posttest

$\bar{X}_1$ = mean of SIT pretest

σ_1^2 = variance of SIT posttest

σ_2^2 = variance of SIT pretest

df = 19 = experimental group

df = 14 = control group

A $\underline{t}$ score of 1.732, obtained in testing for the amount of gain between pre- and posttest IQ scores of the experimental group, was significant at the .05 level ($P < .05$; df = 19). The difference between pre- and posttest IQ scores of the control group yielded a $\underline{t}$ of .20 ($P > .40$; df = 14). A summary of the analysis of SIT data is presented in Table III.

Table III
Summary of SIT Data

	Experimental Group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Mean	123	129*	118	119**
S.D.	10	12	13	13
Variance	100	137	173	171
Range	105-139	110-155	94-141	90-145

*S. ($P < .05$; df = 19) $\underline{t}$ = 1.732

**N.S. ($P > .40$; df = 14) $\underline{t}$ = .20

An analysis of the results of the Frostig testing by individual groups revealed the following: The experimental group increase in PQ during the treatment interval was highly significant ($P < .005$; $df = 19$); the increase in PQ in the control group during the interval of treatment was non-significant ($P > .10$; $df = 14$). A summary of the analysis of data obtained on the Frostig is presented in Table IV.

Table IV
Summary of Frostig Data

	Experimental Group		Control Group	
	Pretest	Posttest	Pretest	Posttest
Mean	99	114*	98	101**
S.D.	9	9	10	11
Variance	86	88	100	111
Range	84-118	94-130	78-108	84-118

*S. ($P < .005$; $df = 19$) $t = 5.0$

**N.S. ($P > .10$; $df = 14$) $t = 1.549$

Discussion

Two of the assumptions on which this research was based were; 1) The processes of perceptual and intellectual development proceed normally under conditions of sufficient interaction with adequate environmental stimuli; and 2) child care centers often do not provide children with the opportunity for sufficient interaction with adequate environmental stimuli. A corollary to these assumptions is that trained teaching staff can implement program materials that will enhance development of perceptual and intellectual functioning.

Analysis of the posttest scores of the SIT and the Frostig tests substantiates credibility of these assumptions and is further validation of the prevailing need for trained staff and program enrichment in day care available to the middle-class child.

The age-range of children in the experimental group (35 to 45 months; mean-age = 41.42) was slightly lower than that of children in the control group (36 to 48 months; mean-age = 43.85); and, interaction of selection and maturation is not considered contributory to the significant gains made by the experimental group.

The sample selection of intact groups, naturally assembled, and pre-experimental equivalency supported by failure to reject the null hypotheses in an anlysis of pre-test results of the SIT and Frostig, support the premise that interaction of selection and regression was not present. Testing and instrumentation interaction with selection were held relatively constant in that investigator administered all tests under similar conditions; and, subjective analysis of the Frostig was controlled by having all Frostig tests scored by a doctoral candidate in Psychology who was not participant to the experiment. To the best knowledge of the investigator, interaction of history and selection was also held constant during the experimental interval.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this research was to evaluate the 4 C's program and materials for training day care staff by studying 1) the effects on the level of intellectual functioning, and 2) the effects on the level of visual perceptual functioning of three-year-old children enrolled in all-day care.

The assumption that middle-class children in all-day care are often captive to inadequate interaction with environmental stimuli as a result of supervision by untrained staff was the rationale for two empirical hypotheses: Children enrolled in all-day care under supervision of staff who had received orientation to the 4 C's program of staff training and materials would 1) achieve significantly greater gains in intellectual functioning; and 2) achieve significantly greater gains in visual perceptual functioning than children enrolled in all-day care in a control group.

A quasi-experimental control group design was selected for testing the hypotheses; and, both the experimental and the control groups received pre- and posttesting on the SIT and the Frostig. The staff training program and materials developed by 4 Cs were introduced to teachers of the experimental group approximately three weeks before the start of

the four-week experimental interval between tests.

The analysis of results of data revealed that children in the experimental group made considerable increase in intellectual functioning ($P < .025$; $df = 31$) over the control group; however, the gain was not significant at the stated level of .01. A significant increase ($P < .01$) in the level of perceptual functioning occurred in the experimental group.

It is the conclusion of this investigator that the considerable gain in intellectual functioning and the significant gain in visual perceptual functioning achieved by the experimental group during the treatment interval may be considered a result of the program of materials for staff training that was developed by the 4 Cs in Dallas (See Appendix D). The original questions directed to this research--"Would day care personnel benefit from this type of limited training? Would children in all-day care show positive gains as a result of such a training program? Was the program worthwhile?"-- have been affirmed by the findings in this study.

In the selection of the sample for this research, the criteria of day care "representative of licensed day care centers available to middle-class children in the Dallas community" was satisfied. The internal strength of the research design, the control of potentially relevant extraneous variables, and the assumption that unknown confounding variables would effect both groups equally, support tentative generalization beyond the scope of this study.

It was neither the interest nor the intent of the investigator to attempt to measure change within staff persons in day care. The assumption that knowledge and training of the individual are of questionable value until translated into observable behavior was basic to the pre-experimental limitation of "lack of control for teacher effects." Concern in this study was directed to any measureable change that might occur in children in all-day care as a result of a more stimulating environment made possible by orienting day care staff to the 4 C's program materials.

Nor was any provision made in the planning of this study to observe spontaneous side effects that might occur in other classrooms as a result of the program directed to the three-year-olds. However, because the 4 C's materials include suggested activities for ages two through six, the packets and information were shared with all of the teachers in the day care center. This generated considerable enthusiasm which was evidenced by changes and additions in programming other classrooms; and, teachers sought out the investigator for further information and suggested resources for reading and materials. At least one teacher verbalized disappointment that her group was not going to be tested.

It is unfortunate that the Dallas community was unwilling to sustain the fledgeling 4 C's organization. The children of Dallas are in need or more--not less--recognition of their critical early developmental needs.

The child of poverty may depend upon professional expertise in an enriched environment, and an abundance of experiences in the day care setting as a result of public funding; not so the marginal- and the middle-class child who has become a "commodity" in the competitive market of proprietary and private non-profit day care. It is ironic that the movement toward freeing the child of poverty from deprivation in early childhood is paralleled by the marginal- and the middle-class child becoming frequent prisoner to a "disadvantaged environment."

A great deal of attention is directed to the compelling need for compensatory education and for quality day care during early childhood. However, the plight of the marginal- and the middle-class child in all-day care is overwhelmed by and resides in the shadows of rhetoric and research focused on children of poverty.

It is the opinion of this investigator that the child care center in the United States has become an institutionalized setting for possible deprivation, neglect, and abuse of children.

Recommendations

The results of this study provoke considerable speculation concerning long term effects and the adult population of the future. There is need for additional research into what is happening to this large segment of children in all-day care, frequently from early infancy. It is recommended that:

1) This study be replicated;

2) Research of a similar design be directed to the two-, four-, and five-year-old age groups;

3) A three-group design which includes a Head Start Center be analyzed;

4) Similar studies, using other curricula and/or measurements be conducted; and

5) An instrument be developed for testing motivation of all staff members in the experimental and the control group centers, in order that some determination of side effects might be made.

The purposes of evaluating instruction are to make judgments and decisions about instruction and instructional programs (Brown, 1971); and, an evaluation may focus on process or outcome. Yet, there is an appalling lack of formal studies in educational research, i.e. studies that focus on changes in students as a result of instruction (Wittrock, 169). Post hoc data is the usual recourse to establishing a basis for an evaluation and these data are of limited value because of obvious selective, often inconsequential, quality. Systematic pretesting of input usually does not occur and identification of causal agents becomes nebulous because of a myriad of extraneous environmental variables. Therefore, it is further recommended that additional research into all-day care use measures of inputs, outputs, and treatments, and that designs approach true experimentation as nearly as possible.

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APPENDIX A

EDUCATIONAL AND TRAINING OPPORTUNITIES IN THE DALLAS AREA

1. Universities:

   A. State: Texas Women's University offers four-year programs in early childhood education and child development through the College of Education and the College of Nutrition, Textiles, and Human Resources. North Texas State University offers a four-year program in elementary education with kindergarten endorsement. Both universities also offer advanced degree programs and sponsor lab schools on campus.

   B. Private: Southern Methodist University and the University of Dallas offer an Elementary Education Certificate with Kindergarten endorsement. Dallas Baptist College offers 12 hours in Early Childhood Education through an arrangement with the TAGER system tied in with similar programs at Texas Wesleyan College, Texas Christian University, and Southern Methodist University. Bishop College plans to have an Early Childhood Education program starting in September, 1973. The University of Plano will sponsor a Montessori course during the summer of 1973.

2. Dallas County Community College District:

   A. Eastfield College has two plans: The Child Development Assistant is a one-year-certification program that consists of core courses in child growth and development and techniques for teaching young children. The Child Development Associate is a two-year program that emphasizes in depth study necessary for child guidance and advanced training in providing learning experiences for young children. A Parent-Child-Study lab school is sponsored on campus by the college.

   B. The Community Service Division of El Centro sponsors informal courses in the basic fundamentals of child care. These are scheduled for 10-week periods in the spring and fall, and upon completion the enrollees receive certificates of attendance.

3. Public School System:

   A. The Dallas Independent School District has an early childhood development program at Skyline High School. There is a day care center in the school building, and students interested in taking this course work with the

children and also study child development theory.

B. The Irving Independent School District, through the Home Economics Department at Nimitz High School, offers a child development course. The school received a grant which pays the students to work in day care centers for a specific period every week, and thus coordinate child development theory with actual practice. This program has recently been extended to include more students and the Home Economics Department at MacArthur High School offers the same opportunity.

4. State Department of Public Welfare, Contract Licensing and Development Division:

This Division provides training for individual centers that are interested in bringing their standards up to meet the Federal Interagency Guidelines and minimum state requirements. The caseworkers in the Licensing Division also encourage directors of day care centers in specific regions of the city to work together, and sponsor workshops in the daytime where professional people in the fields of child development and early childhood education are the featured speakers.

5. Individual Staff Development Programs:

The Day Care Association of Metropolitan Dallas provides many opportunities for in-service training for workers in the nine centers under its jurisdiction. This organization employs two full-time people who are trained in growth and development and ways of working with young children and who serve in a consultant capacity to the centers.

6. Dallas County Child Care Council:

This organization has a training program which is available to any center in the city or county that requests it. Workshops are provided for the staff of individual centers. Language arts activities and learning games appropriate for the preschool child are demonstrated during the workshop. Instructions for duplication of all ideas, as well as other information, are left at the preschool so that the director and the workers can use whatever they feel is appropriate for their children. (Funding for this program was terminated in July, 1973.)

APPENDIX B

LETTERS TO PARENTS

BEST COPY AVAILABLE

September 7, 1973

Dear Parent:

I am a graduate student of Child Development at Texas Women's University in Denton, Texas, and am currently conducting a research study as partial fulfillment of my degree in this field.

Two day cares centers in Mesquite have been selected for the study of three-year-olds enrolled in all-day care. Your child is one of the group under observation. The research procedure will include pre- and posttesting of developmental levels of intelligence and visual perception in an effort to determine the effects of a program designed especially for young children in all-day care.

Should you have the time and the desire to know more about this research, I would be happy to meet with you and explain it further. You may contact me through your day care director.

Sincerely,

Dorothy N. Coyle
Graduate Student
Child Development
Texas Women's University

Dear Parents:

We will be learning about shapes and sizes during the next several weeks. There are a number of ways you can help your child notice the shapes of many of the things he sees every day. Here are some of them:

1. Talk to your child about the shape and size of the objects around him. Notice round buttons, square pockets, rectangular sleeves, and triangular collars on his clothes. Count the number of round things you can see in each room in the house. As you do your household chores, discuss the size and shape of everything you touch. For example, as you set the table comment on the square or round or oval or rectangular place mats, the tall or short glasses. Share your adult vocabulary with your child.

2. Take a "shape" walk. As you go for a walk collect articles of different shapes and sizes, like leaves, stones, blades of grass, etc. When you get home, arrange them on a piece of paper and help your child notice what is alike and what is different about your treasures.

3. Play a guessing game as you prepare a child for bed. Say "I see something big, and round, and red. Can you guess what it is?"

4. Take your child to the library and check out some books about shapes. The librarian will help you, or you may want to ask her for some of the following books about shapes and sizes: A Kiss is Round, by Budney; The Wing on a Flea by Ed Emberly; Round and Round and Square by F. Shapur; Wheels by E. Clymer.

5. Read to your child every time you can. This is the best way to help him develop a love of reading.

You are your child's best teacher, so enjoy this time in his life when you can help him increase his ability to see, hear and speak.

Sincerely,

Dear Parents,

Throughout the school year we will be adding color words to our vocabularies so that we can describe the things we see. You can help your child add new color words and use those he already knows. Here are some suggestions:

1. As you help your child select clothes for school, talk about the blue dress or the green slacks or the red socks rather than just the dress, slacks, or socks. This is a good time to show your child how some colors go better together than others.

2. As you take a walk or ride with your child, play guessing games with color. You can say, "I spy something yellow (or red or blue or orange)", and let the child continue to guess until he can name the object. When he guesses it, let him choose something and give its color. Then you guess what it is.

3. Look at color photographs or magazine pictures and pretend that you and your child are walking into the picture together. As you walk along, what colors do you see? Take turns describing the colors of things in the pictures.

4. Look for books in the library that tell about colors. One of the following may be in your library: Is it Blue as a Butterfly? by Rebecca Kalusky; The Color Kittens by Margaret West Brown; What Color is Love? by Joan Walsh Anglund.

5. Look at things through pieces of bright-colored cellophane or colored glass.

6. Something to read together: Grandpa Dropped His Glasses by Leroy F. Jackson

Grandpa dropped his glasses once in a pot of dye,
And when he put them on again he saw a purple sky.
Purple fires were rising up from a purple hill,
Men were grinding purple cider at a purple mill.
Purple Adeline was playing with a purple doll,
Little purple dragon flies were climbing up the wall.
And at the supper table he got crazy as a loon
From eating purple apple dumplings with a purple spoon.

Read the poem over again and again and substitute other color words for purple.

Sincerely,

APPENDIX C

RESULTS OF A SIMILAR STUDY

MARCH, 1973

A similar study was conducted in the Spring of 1973, using a sample (N=32) of five-year-old children enrolled in all-day care in a predominantly black middle-class metropolitan Dallas community. No significant difference was found between pre- and posttest means of the experimental and control groups.

Both experimental and control groups were located in the same day care center and it proved impossible to keep the two groups from interacting. The teachers were absent frequently; and, on such occasions the children were combined into one large group under supervision of whichever teacher was available. Children were together at mealtime, on the playground, and for various group activities (e.g. singing, etc.) during the day. As a result of the magnitude of confounding variables, this study proved of no value in scientifically assessing the effects of the 4 C's program.

However, it appears applicable to consider the following observation made in Strategies for Success in Compensatory Education (McDill, McDill, & Sprehe, 1969):

> Randomization of control and experimental groups is impeded by the natural indivisibility of school classes or neighborhoods. When control and experimental groups are in close proximity to each other...one group can be contaminated by the other. Although the problem is usually thought of in terms of the experimenter's contaminating the control group, it is also true that the control group itself can neutralize some of the effects of the experiment... Curiously, contaminations which are detrimental to evaluation attempts may be unintentionally beneficial

to the program objective. The Early Training Project at Peabody College suggests that there may be "horizontal" contamination--that the interaction of control and experimental groups in the neighborhood may explain the finding that the scores of the control group also increased....In terms of achieving over-all program objectives, such contamination is a windfall, however, it may complicate the task of the evaluator. (p. 54)

APPENDIX D

CURRICULUM MATERIALS

4 C"S PROGRAM

Packet #1	Supplementary Material - Color
Packet #2	Activities for two-year-olds (Blue Sheets)
Packet #3	Activities for three-year-olds (Yellow Sheets)
Packet #4	Activities for four-year-olds (Pink Sheets)
Packet #5	Activities for five-year-olds (Green Sheets)
Packet #6	Supplementary Material - Shapes

Developed by

ANN FREEMAN

Staff Development Coordinator

4 C's - Dallas, Texas